

*G. B. H. Burman*  
**Grape Culture**

*2* *1854*  
AND  
**WINE MAKING**

IN THE  
**SOUTH,**

WITH A DESCRIPTION OF THE BEST VARIETIES  
OF GRAPES FOR THE VINEYARD; SOILS;  
ASPECT, PREPARATION OF THE  
GROUND, PLANTING, &c.

— ALSO —  
REMARKS ON THE BEST METHODS OF PROPAGATION, THE MAKING,  
BOTTLING, AND KEEPING OF WINE; DISTILLATION  
OF BRANDY, MAKING RAISINS, &c. &c.

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# INTRODUCTION.

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ONE of the earliest plants cultivated upon the earth is the Grape Vine. History proves this beyond controversy—the Bible gives it an honorable place in its oldest records, and we find a god created in honor of it in the earliest days of mythology, showing in what high repute its culture was held in those remote times. Since then, it has lost nothing, and has kept pace with civilization, following it to the very Northernmost limits allowed it by Nature, and acquiring an importance in the Old World second to none save that of the Wheat. A new Continent was discovered, abounding with wild vines of extraordinary vigor and beauty; the climate and soil are of the best. Nature has done all she could, and has only left to the energy of the American race to seize and improve these gifts. Who can doubt the results? Already are our heretofore worthless Pine lands rivalling in price and value our richest Cotton lands, and surpassing them in richness of produce. It is not, perhaps, out of place here to recall a few advantages which the Grape Vine possesses over most other plants. If compared with other fruit, we find it by far the most hardy, cultivated on a broader belt of land, extending from the 20th° of North latitude to the 45th°, to say nothing of the S. hemisphere, growing higher upon the mountains, suiting itself to a greater variety of soil, from the rich bottom of the valleys to the rocky, barren hill-side, where nothing else will grow—producing more fruit to the acre than any other—bearing ill-treatment, neglect, abandonment, with perfect good nature, (if we may use such an expression)—and, if injured by an inexperienced hand, or by accident, easily renovated by another year's more judicious pruning. It is more quickly and surely propagated than any other tree or shrub. It lives much longer than apples, peaches, pears, etc. Its produce can be used immediately like all other fruit, or can be kept most profitably, for years, in the shape of raisins, wine, vinegar, brandy, etc.—an immense advantage possessed by no other plant to that extent.

If compared with other crops, such as cotton, corn, rice, wheat, etc., we find the chances of success two to one in favor of the Grapes; and it should not be forgotten that they are usually planted in the poorest of sandy hill-sides, adapted to nothing else, and on which the proprietor can live and enjoy health, while the other crops require the richest of lands, always more or less sickly. Mr. R. Buchanan, than whom no better authority in America, says: "The Grape, like other crops, is subject to casualties, but my own experience thus far proves it to be more reliable than even the Apple, the hardiest of all our fruit. With me it has never failed to pay more than expenses, and even this year, (1857) the worst of all, it will pay a few hundred dollars; in good

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years it pays enormously." Can as much be said of any other crop? It has often been asked, how many gallons per acre will the Grape yield upon an average? That question is as difficult to answer for this crop as it is for cotton, corn, etc. Much depends upon the land and upon the season. On ordinary sandy pine lands, such as would bring from 5 to 8 bushels of corn per acre, the yield of wine in an average season will be about 300 gallons. On richer clayey lands, such as are being now planted in many places, the yield is larger, and is said to reach to 1,000 and over. Again, of the different varieties of Grapes, some will produce more than others, and foremost among these stands the Scuppernong, then the Catawba, the Warren, the Isabella. The above figures will show, that acre for acre, a vineyard will yield considerably more revenue than the best of cotton, corn or rice land. The wine sells currently at \$2 per gallon. One acre will thus produce from \$400 to \$600. Rice, which is by far the most productive of Southern crops, yields, under the most favorable circumstances, from 60 to 80 bushels, worth \$2 per bushel, or \$120 to \$160 per acre. These are not mere surmises, but positive facts.

Many persons are under the impression that the wine business will be overdone in a few years, and the market will become overstocked. But of this there is not the least fear. The same cry was raised when the cotton planting took such an impetus at the South, and yet, notwithstanding the enormous increase of the supply, we see that the demand still keeps ahead of it. In 1857 upwards of 8,000,000 gallons of wine and brandy were imported into the United States, notwithstanding that we have not yet learned to drink wine.

In 1856 900,000,000 gallons of wine were made in France alone. This quantity is now decreasing every year, on account of the grape disease, and the prices have doubled and trebled since then. We hear from every wine growing country of the Old World similar accounts of the decrease in the wine, and consequent increase in prices, while it seems that our American Grape Vines are not liable to that fearful disease. This is surely great encouragement for us, and with all the facilities we possess at the South, with our soil, climate, and more particularly our slaves, nothing can prevent ours from becoming the greatest wine country that ever was. Several eminent wine growers, and among them Mr. R. Buchanan and Mr. Longworth, have freely expressed the opinion that the sand hills of Georgia, North and South Carolina, were more favorable for vineyards than those of the Northwest. Indeed, nature seems to have selected those three States as the birth-place of all the choicest American Grapes. The Scuppernong, the Catawba, Warren, Isabella, Lenoir, Herbemont, and probably the Pauline and Black July, all hail from the South.

Let us now review the several Southern varieties of Grapes, such as they are at present known to us. In order to do so, we must commence at the beginning; we must start at Nature's starting point, and trace what she has done for us, for we have yet done nothing.

In this and other Southern States, as far as we have been able to ascertain, there are three distinct species of wild grapes, of which there exists varieties of each also in a wild state. These varieties have been mistaken by some for different species. But from their habits and other characteristics there can be no difficulty in referring them to their original stock. These species are the Bullace, the *Cestivalis* and the Muscadine.



## The BULLACE or BULL GRAPE,

(*Vitis Rotundifolia*.)

Also erroneously called by some, Fox. This most hardy plant grows everywhere in this State—in the poorest land or on the richest—in the swamps of the low country and on the tops of the high sandy hills of the up-country. Everywhere it thrives and bears an abundance of fruit, much sought after by hogs, turkeys, opossums and children; in the fall of the year it is a perfect manna for them.

The wood of the Bullace is whitish, slender, although the main stem will acquire a considerable size; flexible and strong, often used by negroes for tying. It has no pith as in other vines, which peculiarity renders it very difficult to grow from cuttings. It throws out innumerable small branches, on which grows the fruit; the eyes or buds are very small, covered with a scale, and reddish down. The leaves are very small, heart-shaped and dented, (*rotundifolia* evidently a misnomer) glabrous, and very different in appearance from any other.

There are many varieties of this species, but with the exception of the Scuppernong, they only differ from each other in the size and flavor of the fruit, this being a little larger or a little sweeter in some vines than in others; the wood and leaves remaining the same.

Fruit round, from a half inch to over an inch in diameter, brown black and shining before maturity, but of a dull black when fully ripe; tough, with small dots upon it; sometimes very sweet, and always having a strong, musky flavor. The fruit grows singly or in small clusters of from 4 to 8 berries. We have been told, but this fact has not come under our personal observation, that the Bullace when grown in swamps is superior in every respect to the fruit grown on high land. If this be true, it would be a singular peculiarity, being in direct opposition to the rule of other grapes.

### Scuppernong.

This is the only distinct variety of the Bullace; it is a white yellowish fruit, dotted like the black; the leaves and the wood are a shade paler than those of the Bullace. It is a native of North Carolina, and was found wild on the banks of the Scuppernong river. Much has been written in praise or against its qualities for the table and for wine; in the former capacity, it will rank according to the taste of those who eat it; it is very sweet, somewhat too musky; easy of transportation; the skin is tough. We have eaten black Bullaces equal to it in every respect.

We are told that good wine has been made from it. We cannot speak from experience in this respect; the juice, however, requires a considerable addition of sugar and brandy. If it cannot be made into wine without this, it is not worth cultivating extensively, which is much to be lamented, for it is a most hardy plant, not at all subject to mildew or rot, and a sure and prolific bearer; but its berries do not ripen together, the period of maturing upon the same vine, extending over one month, and the fruit dropping as it ripens, renders the gathering tedious, and the vintage would have to be done at several different times. It is to be hoped that some precious seedling of this or the black will unite the vigor and productiveness of this to the better qualities of others.

The Scuppernong is of difficult propagation from cuttings, owing to the peculiar texture of the wood which has little or no pith; it can,

however, be grown in that manner with great care. It is mostly increased from layers which take root very easily, or from grafting upon the wild Bullace. From the way that those grapes grow, bearing the fruit singly or in small clusters upon the small branches, it follows that pruning will diminish the crop in proportion to the number of branches removed; they should only then be trimmed in order to give them a more convenient shape, or to remove dead limbs, and it is proper sometimes to diminish the yield to secure the constant bearing. Vineyards of the Scuppernong are laid out 10 by 15 or 20 feet, as they cover more ground than others.

The Scuppernong will probably be more valuable for distillation than for wine making. It still remains, however, to be proved whether it will make a good brandy.

## SMALL BLACK GRAPE.

(*Vitis Œstivalis*.)

The next species is a small grape, known by some as the Fox grape, by others as the "Small Black Grape." The term Fox is also applied to the Bullace, or to the third species, more properly named "Muscadine." There is no sufficient authority to establish the names of these species upon a permanent basis; until this be done, it will be best, probably, to adopt the name given to this by the Committee of the Pomological Society of Georgia, "*Vitis Œstivalis*,"—"Summer Grape."

The present species has been called by Botanists, "*Vitis Labrusca*." This name must not be retained, as it belongs to the only known species of wild grapes in Europe, the Labrusque or Lambrusque, so common in the forests or hedges of the South or middle of France, but differing essentially from ours; its leaves are glazed, its fruit small black. We do not know whether, like ours, it is diœcious.

The berries of the Œstivalis are small, with thin skin, blue black, and very seedy, seldom very sweet. We are here considering the general type, for there are wild varieties of this vine, as well as of the others, differing somewhat in the degree of sweetness and in the appearance of the fruit. The bunches are long, and, under favorable circumstances, sufficiently large and packed; the leaves are large, generally (not always) lobed, rough. The young wood is very red, vigorous, pithy, with long joints. This vine grows abundantly all over the State, in high as well as low grounds, attaining, sometimes, enormous proportions, some (especially of the male vines) being found nearly a foot in diameter. In this respect it surpasses all others; it climbs to the summit of the loftiest trees, extending its branches from tree to tree.

The Œstivalis Grape is destined to perform an important part in the culture of this country; it has already given us valuable offsprings, and will, no doubt, produce others still superior to these.

We will now mention some of its cultivated varieties, and shall confine our remarks to those found valuable here at the South. It appears that in Ohio, and at the West generally, they give a decided preference to the varieties of the Muscadine; it may be that they have not given others a fair trial, or perhaps they do not succeed as well with them as with us.

## The Warren

Has leaves and wood much resembling the wild type, though the wood



is not quite so red. It is a very vigorous grower, and if planted in proximity to others will keep them under and finally destroy them. The berry is dark reddish brown, not blue black, about a half inch or over in diameter, very juicy and pleasant; bunches often large and more or less compact; leaves very large, deeply lobed, and of a rich green. This precious grape, which is a great bearer, gives a wine varying in color from almost white to a shade darker than Madeira, according to the time the juice has been left on the skins. It will not make a claret or red wine. It is sufficiently strong to require no sugar or brandy to preserve it from acidity, and will keep as well in a hot garret as does the Madeira. A delicate sweet wine, and a first quality champagne have been made from it, equal to any imported in beauty and flavor.

## Black July,

(*Erroneously called Lenoir.*)

A small blue black berry, closely packed on a medium sized bunch; very sweet, not very juicy, and if allowed to remain on the vine will wither and finally dry up without dropping or spoiling in any way. It never rots or mildews, but is not a large bearer. Wood light red; joints short, eyes small; growth of limbs very horizontal; leaves dented, not lobed, smaller than those of the Warren, and when young of a greyish green. Wine dark rich claret, not unlike pure Port; a first quality wine; proven by Physicians to be the best in the treatment of Typhoid fever.

## Herbemont.

Wood somewhat different from that of the Warren; leaves *not lobed*, dentate, round, large, coarse. Fruit resembling the Warren, but with us far inferior in flavor and sweetness. This grape is described in Western catalogues, and is considered valuable for wine. It is thought by some to be identical with the Warren, but having both kinds in full bearing, we differ from this opinion; indeed the difference is very palpable. (This is probably the Gingnard of some.)

## Lenoir.

General appearance of the vine not unlike that of the Black July, but the bunches are considerably larger and shouldered, this seeming to be the only difference between the two varieties—the berries being precisely similar; wine not yet tested. The grape described in the Report of the Georgia Pomological Society, under this name, is the real Black July.

## Pauline, .

(*Formerly Burgundy.*)

Berries reddish brown, transparent, juicy, very sweet, with very thin skin; about the size of the Warren. Bunches mostly loose, sometimes compact, shouldered and large. A most delicious table grape; never rots; in dry weather, if allowed to remain on the vine, will wither and dry into raisins. Leaves large, round, dented, curved at the edges, yellowish green, the ends of young branches having a peculiar brownish appearance, as though diseased. Wood deep red, not spotted like the Warren. Buds very prominent, Evidently of American origin, and not European as its former name would imply. This grape may rank

as No. 1 for the table, being equal in flavor and delicacy to any European fruit. The wine made from it is delicious, and will keep sound over a fortnight after the bottle has been opened and half used; a moderate bearer.

The above varieties, with several others not here mentioned, from their being of inferior merit, or not well known, although differing from each other in leaf, wood and fruit, are nevertheless easily recognised as belonging to the same family of "Æstivalis."

## MUSCADINE.

(*Labrusca, of some—Fox in Ohio.*)

The wild Muscadine is not as common as either of the other species, and it seems to require stronger land to thrive well. Leaves large, dented, not lobed, coarse, leathery, white underneath. Young wood grey, more slender than in the Æstivalis species. The second year the wood sheds off its bark, which peels like strips of paper. The old wood also sheds, and the smooth inner bark often presents a singular white appearance, which is peculiar to this species and most of its varieties. Berries large, oblong, in clusters of 10 to 12, and in some vines regular bunches; blue black with thick leathery skins, and a strong musky aroma. In a wild state not a pleasant fruit, being no superior to the Bullace, to which fruit it bears some resemblance in size and taste.

Such is the parent of the Isabella, the Catawba, Cape, Bland's Madeira, etc. These fine varieties have leaves more or less resembling the original in size and shape; their young wood all grey, easily recognisable from the red wood of the Æstivalis; all peeling off as above mentioned.

### Isabella.

Leaves resembling in shape and upper texture to the wild type, under surface not so white. Wood yellowish, and similar in every respect to the wild Muscadine. Berries blue black, large, oblong, with 3 to 4 seeds; strong, musky flavor, very sweet. Bunches medium-sized, not generally shouldered, loose; very beautiful looking fruit; preferred by some persons to any other grape. A great bearer, but like all grapes of this family, if allowed to overbear, the fruit will not mature well. Wine light claret, resembling St. Julien, and having the delicious bouquet so peculiar to the Bordeaux wines. The best for Summer drink.

This grape is the most cultivated for the table at the North, where it seems to succeed much better than at the West, and is preferred to any other. On the high lands at the South it does remarkably well. It is destined to hold a conspicuous place in all complete Southern vineyards.

### Catawba.

This grape has already become celebrated from its being the favorite in Ohio, and being extensively cultivated there, almost to the exclusion of all others from their vineyards. Leaves and wood somewhat resembling those of the Isabella, the former having red veins. Fruit same size, but differing in color, being what is usually called red. Flavor honeyed to musky, rather strong. Bunches loose, and sometimes shouldered. This grape makes an excellent dry wine, and a good champagne. A great bearer.



## Bland's Madeira.

(Rose Grape.)

Mr. R. Buchanan, in his excellent work on the Grape, says this is a delicious table grape, resembling the Catawba in its appearance, but too tender for vineyard culture on the Ohio. From descriptions, we think our Bland's Madeira identical with theirs, but it is far from being a superior table grape. It has a decided astringency, which is not very agreeable; it has no musky flavor. It fruits well, but the leaves often drop before maturity, causing the fruit to remain in "*statu quo*."

We have not thought it worth propagating either for the table or the vineyard.

There are several other varieties of this species, not equal, however, to the two first, or not sufficiently known to warrant recommendation.

## Selection of Grape Vines for Wine Making.

In making a selection for a Vineyard, we would earnestly recommend the planting of several kinds. Many persons have completely rejected, without a trial, every variety saving the Catawba. This is injudicious to say the least. It is blindly following into the footsteps of others who have not given a trial to the other varieties. The Catawba will fail in some seasons, when other kinds will mature perfectly; a mixture would then ensure a good wine. There should at least be five or six species in all vineyards, and of these the best so far known to us and proved are: the Warren, the Isabella, the Catawba, the Pauline and the Black July, and should the Lenoir prove better than the last, it might be substituted for it. In good seasons, a separate wine might be made from each, if preferred; in bad seasons put all together, or at least two or three kinds in one. It is customary in the best managed vineyards in Europe to mix a certain proportion of white grapes with the Black; the first gives delicacy and refinement to the wine, the latter color and strength. So far we have no white grape at the South or in America, suitable for that purpose. It is to be hoped some will be ere long obtained from the seed.

The most productive vines as well as the richest lands are not always the best. Experience has invariably proved that the more fruit does a vine produce the more inferior will be the wine made from it. The tendency of our wine growers to boast of the large yield of their vineyards, is very much to be regretted, in this early stage of the business, when it is so important that we should establish the reputation of our wines. They sacrifice quality for quantity, and will very materially injure the sales, for we have much prejudice to contend with, both in favor and against us, the one as fatal as the other. It is perfectly needless to maintain that this or that wine has been pronounced good by a Committee, or by this or that Society. The world is finally to be our tribunal; its judgment is unerring as it is refined, and is not easily revoked when once pronounced. None but the very best of wine will acquire a lasting reputation, and this never has and never will be produced at the rate of 1000 gallons per acre.

## Preparation of the Land, and Planting.

The Grape Vine will grow well on almost every soil, but as before mentioned, the juice will not always acquire all the necessary qualities

for a choice wine. It is impossible to say which is, in a decided manner, the very best. When analysed, soils entirely different in their component parts, have been found to yield a very superior wine. There are vineyards of great celebrity on all kinds of soil, from the lightest sand to the stiffest clay, in calcareous lands, in granite soil, volcanic, rocky, in places devoid of lime, etc., etc. But there are some general rules which should guide us: the soil and subsoil must absolutely be dry, not retentive of moisture; well-drained, if level. In cold climates, the vineyard must be on a Southern slope; in warm climates, the South-east, East or Northern exposure, or a level plain. A preference might also be safely given to light, porous, dry, sandy soil, when a selection can be made, as the grape will be less liable to rot than on other lands, and will, generally speaking, ripen better. New land is to be preferred, such as would bring from 4 to 6 bushels of corn per acre. Clear the land, and break it up with plows, as for corn, taking care, of course, to cut down and remove all trees; now get a parcel of small stakes, from three to four feet long, and proceed to mark out the rows; if the land be level, let the rows be straight, but if on a hill-side, lay them horizontally or level, without regard to straightness; this is in order to prevent the washing away of the soil. The rows are best from 8 to 10 feet apart, to allow of driving carts between to haul stakes or manure when it becomes necessary, and in vintage time to facilitate the gathering of the grapes. Having staked off the rows to your satisfaction, proceed to open the trenches or ditches; let them be about two feet wide, and from fourteen to twenty inches deep. Large plows, followed by long shovels, will very quickly do the work in sandy soil. The next thing is to plant; this can be done in our Southern climate from the middle of November to the end of March. Some give a preference to cuttings, others to rooted vines; the first are cheaper, but the rooted plants will gain one year, will succeed more generally, and there will be the following winter but few missing vines, if any at all to replace, while the labor of taking up some, re-opening the holes in the missing places and replanting, is very great, where cuttings have been used. Another and very great advantage in using rooted vines is that you may, when the nature of the land allows it, put the lower roots perpendicularly down, thus converting them into so many tap roots.

With a wooden compass having an opening of  $4\frac{1}{2}$  to 5 feet at the points, mark out the places for the vines at the bottom of the ditches, drop the vines in their places and proceed to plant. Two men with short handled hoes will plant a great many in a day; one deepens the hole to let the roots go down some inches deeper than the bottom of the ditch; the other places the vine upright and holds it until the first has put earth around it. If you have other hands, let them follow with hoes and refill the trenches, so that the top eye of the vine will be on a level, or a little above the surface of the earth. Put a short stake to each vine to mark its place. There is nothing more to do until the spring grass calls your plows and hoes into use; then work them as you would corn or cotton. Two rows of peas or corn can be planted in between, and will not interfere in any way.

This simple and easy mode of preparing the land and planting the rooted vines, has been proved, by positive experience, to answer perfectly on all sandy soils of our piney lands, and on all such as have a proper admixture of sand and clay. Vineyards eighteen years old, and planted simply in square holes, or in ditches as above, are yet in all their strength



and vigor, and show no signs of decay. The difference in the cost of this method of planting, and that of trenching the whole land, is so great, that many persons of limited fortune could plant a few acres or the one, while the other would be beyond their means.

### First Year's Pruning.

In the winter, at any time between the 1st of December and the 15th of March, take a sharp knife, remove every branch except one, and cut that down above the second or third eye of the last growth; break the land with a half-shovel plow as for corn, passing the nearest furrow about twelve inches from the vines. Give them a stake about four feet long; they will, in the spring, shoot out many suckers, and put out eyes where they have no business; cut out the suckers with a long-handled chisel, and cut off all the eyes excepting the two or three you left in pruning; these, as they grow up, should be fastened to the stakes, with bits of soft string, bark or any thing else you may have at hand. Keep the land cultivated with plow and hoe, and plant peas between.

### Second Pruning.

The second winter's pruning is a repetition of the first, but you must replace the small stakes by good lasting wood, from six to eight feet long. There will be some fruit. The summer's work is the same as above.

### Third Pruning.

The third winter's pruning is different: remove all branches or canes, save the two strongest; of these, cut the highest about eighteen inches long, and the other about three inches—the longest is intended for fruit; the latter, which is called "spur," is to make wood for next year. Towards spring, bend this long branch *horizontally*, and fasten the end of it strongly to a short stake, placed at a sufficient distance. In the West this cane is made to form a complete circle, by fastening the end of it to the foot of the vine; this is called "arching." The object of arching is to moderate and regulate the flow of the sap, in order that it may fill all the eyes on the cane, for if the canes were left perpendicular, the sap would pass the lowest eyes, and rush upwards to the top. But, in our opinion, arching overdoes the business, and the sap, whose tendency is always upwards, will most generally stop at the eyes on the upper part of the arch, and develop them strongly; and those below will put out very weakly, or not at all. While, when the cane is laid *horizontally*, they all get their share much more equally divided. The vine should also be strongly fastened to the large stake. All who plant vines must plant out Osier Willow, whose twigs are superior to any others for tying, although we have made use of the young twigs of Black Gum, or the Wild Willow, and of the bark of young Hickory.

During this summer, the vines will throw out strong branches, which must be fastened to the stakes as they grow, until they reach the top, when they may be left to hang over. Plow and hoe as usual; plow deep in winter and in summer make use of a scraper. After this, the winter pruning is always, more or less, a repetition of this last; one spur, and one or two bearing canes, according to the strength of the vine. In pruning, let the cut be clean and close, leaving no small ends of dead wood, which will surely injure the old

stem. Among old vines, a small-toothed butcher-saw will greatly assist the operation.

We do not approve of summer pruning; vines and fruit require all the shelter they can muster to preserve them from our burning sun. Persons engaged in the grape culture should not lose sight of the object of pruning; it is to moderate and equalize the production of fruit, thereby improving its quality, and sparing the health and life of the vine. We are often told that this or that person has a vine which is never pruned climbs to the summit of high trees, bears abundantly, is very old, etc. A single vine is very different from twelve hundred to the acre!—and in many parts of Italy where they have adopted the tree culture, the quality of the wine which formerly ranked high, has completely been destroyed. We never wish to see our vines average more than from twelve to fifteen bunches each. **QUALITY** is better than **QUANTITY**.

### General Culture.

Weeds and Grass are exceedingly injurious to a Vineyard. The plow in the fall or winter, and then the scraper, and the hoe throughout the summer, are the best and most expeditious implements for keeping the grass under. The branches of the vine should be fastened, as they grow, to the stakes with straw, bits of coarse bagging, or hickory bark, until they reach the top of the stake, and then they can be allowed to hang down, or reach to the next stake. They should never be shortened, as that causes the side buds to put out, and sometimes to bear bunches which never ripen, and only exhaust the vines. It is necessary occasionally to manure the vines; bone dust, or broken bones, vegetable manures, well-rotted stable manure, cow-pen manure, ashes, are all very good, the last probably the best. The most approved mode of applying it is to make a trench twelve inches deep, or an oblong hole 16 to 18 inches deep on each side of the vine, and put in about a shovel full, more or less, according to the strength of the manure. Every year a small portion of the weakest vines can be thus treated, and the strength and health of the vineyard will be kept up with very little trouble. Too much manure is injurious to fruit, vine and wine.

### Diseases of the Vines and Fruit.

In Europe the oidium has in some places annihilated the grape vine, while in most others it has considerably diminished the production of the vineyards. It is a white fungus which grows upon the leaves, the stems and fruit of the vines, destroying all it feeds upon, often killing the vine entirely, as is the case in Madeira and other places. A liberal use of sulphur is said to have somewhat arrested its progress in Europe, not, however, without affecting the quality of the wine. This fearful scourge has not yet made its appearance in America; and, indeed, it is said that our native vines in Europe are exempt from it. Importations of European vines should be entirely discontinued, lest we also import the oidium.

The rot is the greatest evil we have to contend with. It is most fatal on the Catawba, Isabella and Warren, the three most productive grapes.

The cause is supposed by many persons to be an excess of water at the roots of the vine in any clay subsoil, retentive of moisture; others



have attributed it to some defect in the soil; and it is also said that sandy soils are generally exempt from this disease. This is true only to a certain extent. Moisture at the roots will certainly cause the fruit to perish; but dry, porous, sandy soils are not free from the rot, although less subject than others. The principal cause of the rot lies more probably in the atmosphere than in the soil. Our dews, always heaviest after rains, are cold and impregnated with gases or substances perhaps of themselves injurious to the fruit; the morning sun comes out very hot, and acting upon the dew, may cause some chemical change in the juice, productive of disease and consequent decay. In support of this, can be brought the fact, that vines sheltered from the dew are entirely free from the rot, while no substance yet added to the soil has been found to prevent it.

It is needless here to notice other diseases of the vine, which are either unknown here, or very rare. The leaves are sometimes shed from injudicious treatment, such as allowing the grass to grow among the vines, plowing in very wet weather etc., etc. A little care will obviate these evils.

### Insects.

The most annoying insect at the South is a small green caterpillar, about an inch in length when full grown, which curls up the leaf with a silk, and feeds in security upon its substance. They are sometimes so numerous as to destroy every leaf on the vine, thereby causing the fruit to remain in *statu quo*. They should be destroyed by every possible means; fires at night to burn the moths which deposit the eggs; lime and water sprinkled over the leaves; sulphur scattered upon and under the vines, and finally the raking up and burning of the leaves as they drop, are the only remedies yet known. The *Isabella* and *Catawba* are much more affected by this than the other vines.

### Birds.

Nearly all birds are fond of grapes. A gun is the only remedy.

### Frosts

Are occasionally injurious to vineyards, although very seldom as much so as on the 28th of April, 1858. When the young shoots are killed, it is best to cut them immediately down to the old wood; another eye will be soon developed, and most probably bear fruit. In Europe they not only have to dread the late spring frost, but also the early fall frost, which will often cut off the crop before maturity. This is not to be dreaded here.

### Propagation.

Grape Vines are propagated from Cuttings, Layers, Suckers, Grafts and Seeds.

#### CUTTINGS

Should be from 14 to 18 inches long, from well matured wood of the previous summer. In Europe they prefer them from two years old wood, which in this country is exceedingly difficult to strike root, and consequently rejected. If to be planted in the vineyard, 3 at least should be placed in each hole to have more chances of success. Should

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more than one take, the others must be removed, in doing which be careful not to injure the one which is to remain. If the cuttings are to be planted in a nursery, select a tolerably good piece of land, dry and not hard; have it trenched to the depth of two feet; level the top; then open a small ditch at one end of it, about one foot in width, between two boards laid on the top, to protect it from caving in, and to make it straight; put the cuttings in 2 or 3 inches apart, leaning them against the board next to the beginning of the land, so that the top eye of the cuttings will be as near as possible level with the board. When you have fixed as many as the ditch will contain, at the above distance, commence opening another similar ditch against the far side of the second board, using the earth to fill the first containing the cutting; put the dirt in carefully, not to disturb the cuttings—thus while opening one ditch, you refill the one already planted; continue so to the end. Mulch, keep free from weeds, and water if possible. Cuttings should be planted as soon as possible after being cut.

When a rare and precious grape is to be increased from cuttings, it is best to cut them up into single eyes, and raise them under glass in a box, or on a bed arranged purposely; shelter them from the sun; water regularly, but do not keep the soil too wet; it would make them rot; a common tumbler will answer the purpose; it should be raised daily to give air, and wipe the moisture off the inside. When the young shoot has reached the top of the glass this can be entirely removed. The single eyes are also raised in jars upon hot beds and under glass, but the box and tumbler is cheaper and easier, and the success is, for the least, as great.

### LAYERS.

The Scuppernon is best propagated from layers, as it is hard to strike roots from cuttings. Others are also occasionally propagated from them, but cuttings are always best. Layers are made in winter by burying well matured wood of one year's growth. If intended to remain where made, to replace a missing vine, it should be laid in a deep trench and manure be added to give it a start. The next winter separate it from the old vine; such layers will generally grow wonderfully, and bear fruit the same season. If intended to be removed, lay them only 6 or 8 inches deep. Layers are also sometimes made in the summer by covering young new branches with a shovel full of earth; they will strike roots and give plants for the next winter, but such plants will never make healthy vines, and are short-lived. Layers of all kinds are more or less injurious to the old vine, and should be indulged in only to replace a missing vine.

### SUCKERS

Are young shoots starting at the foot of the stem, below the surface, and having a few roots of their own; by carefully cutting these, when pruning, from the main stem, and preserving the roots, excellent and vigorous plants are often procured, which are equal to those raised from cuttings. These are to be found, however, only on vines that were neglected during the summer, as all suckers should be removed as they put out; like layers they soon exhaust a vine.

### GRAFTS.

An excellent mode of propagating valuable vines. Graft upon pieces of root throughout the winter, and set out in beds like cuttings;



or graft upon young and vigorous vines in the spring, when the stock has started its buds, an inch in length, as it will then bleed less than it would earlier. Graft as you would an apple or any other plant, only you need not mind that the barks coincide, as the sap in the vine runs throughout the entire body of the stem, and not like in other plants, immediately under the bark. A vine grafted on a vigorous stock will often attain a growth of 20 feet the first year, and produce abundantly the second. Vines can also be budded, although this mode has not been much used.

In grafting, be careful to let the stock be of the same species as the scion, otherwise the new vine would be of short duration. The Scuppernong upon the Bullace—Isabella, Catawba, etc., upon the Muscadine tribe—Warren, Pauline, etc., upon the *Cestivalis* species, and the European vine would do best upon this species also, as it more closely resembles their type.

### PROPAGATION FROM THE SEED.

We would urge upon all engaged in the culture of the vine the importance of planting each year a box of seeds, some from the choicest grapes of the season, and some from the wild grapes of the woods. So far, our best native grapes have been produced from the chance seed of wildlings, and no doubt other choice varieties will be produced in the same way. It is yet a mooted question which is best; until decided, both should be tried. Plant the seeds in a box; the next winter remove the young plants to a nursery bed, where they can remain two years; then set out. About one-half will be male vines; they are usually the strongest, and when ascertained to be such, can be used as stocks for grafting upon; of the other half, a large portion, perhaps all, will be inferior and worthless. Some may be as good as what we already have, and one or two might be valuable. One valuable new seedling among a thousand would more than repay for the trouble. The great desiderata to be obtained, are: 1st. One or more white grapes with good vinous qualities to mix with our black grapes—having sufficient productiveness, not liable to rot, and hardy. 2d. Good table grapes, of different colours, white, red, black, with fewer seeds than those we now possess, and not so liable to the rot; the number of seeds is the great defect of our table grapes; for wine it matters not.

To hasten the fruiting and proving of Seedlings they should be grafted upon older vines; if left to themselves, they are 6 or 8 years before producing fruit.

### Durability of a Vineyard.

It cannot yet be known how long a vineyard will last in this country, as none are over 25 or 30 years. In Europe they last from 50 to 200 years, according to the soil or treatment they receive. To restore a decaying vine, the best plan is to open a trench, two feet deep, four long and one wide, in the row at the foot of the vine, and very close to it put in six inches of well rotted manure and woods earth; then cut the top roots of the vine and force it bodily into the trench, raising two or three of the youngest branches upright, then fill the trench with surface or woods earth, and a little manure, so that the entire vine, excepting the ends of the upright branches, is completely and deeply buried. The growth during the next season is astonishing, and the vine will last and thrive for many years.

## Wine Making.

Our process for making wine is different from that followed in the West and in some other sections. The grapes being gathered, and all unsound or green berries removed, they are thrown into large tubs, or half barrels, and thoroughly crushed with the hand; the contents are then emptied into large vats, (hogsheads) which are filled to within fourteen inches of the top; cover these with homespun and boards, to keep out gnats and flies. In a very short time fermentation commences; the mass swells and rises to the top. The next morning the clear juice is drawn from a foseet, near the bottom, and poured into a barrel; when no more juice comes out, the mass in the vat is then carried to the press, and what liquid remains in it is squeezed out; this is usually very thick, and is put into another barrel, as it is of inferior quality. Be sure that your barrels are filled to within three inches of the bung; less than that would leave too much air in contact with the wine, and would cause it to sour; more than that would cause it to overflow in the fermentation which for a few days will be very brisk; when this has subsided, fill the barrels to one inch of the bung, with wine reserved for that purpose, and close the bungs tightly. Be very careful that the barrel, tubs, vats, etc., all be perfectly clean and sweet, as the slightest degree of uncleanness would be fatal to the wine.

There now remains nothing to do until the next winter, when the wine is drawn into other barrels in order to clarify it. The dark Claret is allowed to ferment on the skins for four or five days, in order to extract all the color; it is then treated as the others.

The above process has been for several years successfully followed by some wine makers at the South, and also in Europe. At the West, and in many other places, the must is not allowed to ferment upon the skins and stems; the grapes are pressed immediately, and the must put into the barrels at once. Both plans can be tried, and will, no doubt, both be found to answer—the first giving more color to the wine.

## Treatment of Wine in Casks.

Visit the cellar daily in order to obviate any defects or inconvenience which might arise from a leak or other causes. It is necessary to keep on hand a small quantity of the best wine to replenish the casks whenever the wine in them has diminished, from leakage, evaporation, etc. In the spring a second fermentation will take place, not as strong, of course, as the first; when it has subsided, refill your casks, and keep them tightly closed; a handfull of sand over the bung will keep the air from getting through by some unseen crack or hole. During the summer the casks may again require refilling; in doing this, insert a tube into the wine and pour through that tube, in order not to stir the upper surface of the wine in the cask, which often has a coat of mould, and might, if mixed with the wine, impart to it an unpleasant taste. In the fall or winter following, rack the wine; that is, draw it from one cask into another, in order to have it as clear as possible. After this racking, it would be advisable to leave the wine 3 or 4 years in the casks before bottling, being careful to refill them with your best wine whenever they require it. Many of the choicest wines of Europe are never bottled before the fifth or sixth year, and then are left a couple of years in bottles before being offered for sale; they there acquire that delicious bouquet



so much prized by connoisseurs, and which is wholly posterior to all fermentation, and is entirely different from the "fruity flavor" of some wines. The "bouquet" is not to be found in the grape juice; it is developed by age. The "fruity flavor" is something which survives fermentation, and is of the same nature as the essential oils of fragrant plants. The "bouquet" is distinctly perceptible in Madeira, Bordeaux, Champagne; the "fruity flavor" mostly in Catawba and some of the Moselle wines, in which last it is added in the shape of orris roots, violets, etc., as these wines have no bouquet.

### Bottling.

Let the bottles, of course, be perfectly clean, sound and dry; fill them to within an inch of the cork; cork immediately; use none but the very best of "velvet corks"—soften them in a cork crusher; dip each in wine or good brandy, and they will then easily enter the bottle, and will fit tightly; seal with a composition of Burgundy pitch, wax and tallow, putting in enough of each to make it neither too soft nor too brittle; when melted on a slow fire, dip the ends of the bottles into it, and enough will adhere to seal completely; then lay your bottles on their sides on a dry place. The Warren and Pauline wines will do best in a warm, lighted room, such as would suit Madeira wine; while the Claret wines will require a cool and dark cellar.

### Cellar.

Those persons who wish to confine themselves to the making of Warren and Pauline wines, or any of that class, can well dispense with excavated cellars, as those wines seem to do best in warm, lighted rooms. Those wishing to manufacture the light Isabella Claret, Lenoir and Black July, must have a dark and cool place to keep them. An excavation beneath a hill-side is the best when practicable, as it can then be ventilated at will; a little moisture is rather an advantage. It should not be forgotten, in the selection of a spot for a cellar or wine house, that water near at hand is absolutely necessary for the washing of barrels, bottles, etc. In building a cellar or wine house, have it sufficiently wide to leave a space of at least four feet between the barrels of wine and the wall, as they require to be seen all around for fear of leakage; and also have the frame upon which the barrels are laid, elevated some two feet from the floor, to enable you to see the bottom of the barrels, and also to facilitate the drawing of wine, which can then be drawn immediately from one cask into another on the floor.

### Brandy--Vinegar.

If a cask of wine becomes a little acid from some cause, distil it immediately, and, if not too sour, it will give excellent Brandy. A common still, of 40 to 60 gallons, can, with care, make brandy equal to the best imported Cognac. The operation is easy and simple. Distil with very slow fire, and the brandy will always be better.

Should the wine have become too sour, it is best to convert it into Vinegar; this is done by pouring a half gallon of warm vinegar into it, and simply placing a cloth over the bung, to allow the contact of the air, but not the passage of insects. Expose it to the sun occasionally, and shake the barrel often; when sufficiently sharp, bung tightly; never add water.

## Raisins.

Our Natives are too seedy to make good raisins ; but the following is a good receipt : Take the best bunches, not too closely packed, remove all imperfect berries or impurities ; of course, the fruit must be perfectly ripe ; dip each separately into a tub of lye water, hot, but not too much so to bear the hand in ; then place them upon a trellised frame, to insure perfect drainage and free contact of air ; dry them in the sun for several days, and put up in tight boxes. They are also sometimes dried in ovens, without lye ; no sugar is to be added.

Grapes are kept fresh for winter use between layers of paper, or packed in oven dried bran, or tasteless saw-dust, or slaked ashes, etc. The boxes must be very tight and close. We do not believe they can be so well preserved at the South as in more Northern latitudes, from the fact of our grapes maturing so long a time before cold weather. The Malaga which comes to us in such excellent preservation, is often packed in cork dust ; but the dry and pulpy nature of that fruit is much more favorable for keeping than our juicy grapes. Excellent jams, jellies, cordials, etc., are also made from grapes.

## Conclusion.

In the preceding treatise it has been endeavored to condense as much easy and simple instruction as could possibly be done within such narrow limits, and to avoid creating difficulties by learned dissertations upon the niceties of the divers modes of pruning, training, tying the vines ; or upon the contending opinions of numerous ænologists in regard to the principles of fermentation in and out of the vats, and to the measurement of the density of must by Hydrometers, Saccharometers, Ænometers, etc., etc. They are valueless to the farmers, and would only tend to confuse the mind of many, and perhaps dishearten them. A baker may make good bread, and yet be ignorant of the principles by which the leaven will act upon his bread and cause it to rise.

One of the principal advantages to the country to be derived from Grape Culture is to enable the farmer of moderate means, as well as the wealthy planter, to enjoy the benefit of a vineyard proportionate to his means—adding to his income as well as to his comfort. Rice, sugar, cotton planting, require immense capital, to be carried on to advantage. A poor man cannot attempt them—they are beyond his reach. Not so the grape ; a few leisure days in the winter, of which there are so many, and a few hours in the grassy season, devoted to one or two acres of his hitherto poorest and most worthless land, will insure him a handsome income, and a pleasant beverage more wholesome and agreeable than Peach Mobby or Persimmon Beer, and more conducive to his and his children's morals than Whiskey, that bane of our country, which it will finally drive out of use.



# APPENDIX.

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## GRAPE CULTURE IN THE SOUTH—No. 1.

[From the December (1858) Number of *Southern Cultivator*.]

THAT the *climate* of the South, generally, is better adapted than that of any other portion of the Union, to Grape Culture and Wine Making, is now generally understood and admitted, not only by the intelligent portion of our own people, but by the experienced Vine Growers of the North and West.

All that middle portion of the Southern States which is sufficiently elevated above the coast range of flat pine land or "low country," will, if properly planted and cultivated in the Grape, yield a better return for the capital and labor employed than in any of our great staples. In fact, there are hundreds of thousands of acres of poor and partially worn out hill-sides throughout all the older planting States, which are unfit for the growth of either Cotton or Corn, that might easily and cheaply be converted into profitable Vineyards and Orchards—the products of which would find a ready sale and high prices in our own cities and the large markets of the North. Such lands as we allude to are generally healthy; they can be bought at a very low price, and the capital and "force" necessary to enter upon the culture of the Grape or other fruits, is quite small, compared with that required by anything like a respectable planting interest.

The writer has recently made a somewhat extended journey throughout the North and West, for the especial purpose of noting the comparative capacities of the different sections, and the systems of Grape Culture pursued in each; and the result of these observations is a greatly increased confidence in our own climate over any other that he has visited in the Union. As Grape Culture, therefore, which has proved highly remunerative elsewhere, must be still more so in the South, and is destined very soon to become a most important interest among us, we purpose giving a series of short articles embodying the experience of the most successful cultivators in America—especially in the South, which requires a different system from that pursued in the Northern and Western States, and Europe.

LOCATION, SOIL, ASPECT, &c.—Any land above the immediate sea-coast of the Southern States, sufficiently elevated for natural drainage—i. e., upon which water will not stand, but run freely, without producing "washes" or "gullies," will answer, so far as *location* is concerned. Steep hill-sides are also suitable, but the expense of terracing, walling, &c., will generally be found too heavy. As regards *soil*, almost any texture will do, except a stiff, cold, retentive, baking "pipe clay," or a soil underlaid near the surface with "hard pan," "bog iron ore," limestone in heavy slabs, &c., &c. Loose, broken rock is not objectionable, provided there is intermixed with it sufficient soil to hold the proper nutriment for the roots; and soils of a "drift" formation, containing loose rocks or very coarse gravel in considerable quantities are generally preferred, for wine. Perhaps the very best soil for the Grape, however, is a coarse gravelly loam, with a rather porous subsoil. Such soils are always warm and dry, and easily kept in a deep, friable and mellow condition—all of which points are essential to successful Grape growing.

As regards *aspect* or exposure, that is of not much consequence, in our climate of almost perpetual sunshine; but an Eastern, Southeastern, Southern or South-western exposure is generally preferred. Of these, perhaps the Southeastern is the best; though any of those indicated will answer very well.

**PREPARATION OF THE LAND.**—This is a point on which there has been much discussion, and respecting which many *extreme* opinions have been expressed. The ultra-advocates of *deep culture* and heavy manuring, contend that it is absolutely necessary to trench the land with the spade to the depth of from two to three feet, turning it completely over, intermixing the different stratas of soil, and applying a liberal quantity of manure, as the trenching progresses. This system we think unnecessarily laborious and expensive for this climate. It will cost from \$100 to \$200 per acre, according to depth, quantity of manure, &c., and can only be attempted by persons of abundant means, and full *faith* in the enterprise.

Those who feel the necessity of reversing and mixing the different soils, at a less expense, use heavy turning-plows, drawn by from four to eight yoke of oxen or teams of mules, and turn the land completely over to the depth of fifteen to twenty inches. Such, we believe, is now the practice of the Messrs. WYNN, of Wilkes Co., Ga., from whom we shall be glad to hear more fully respecting the size of plows, number of teams, depth of furrow, expense per acre, &c., &c.

Other gentlemen have succeeded in producing very good Grapes and excellent Wine, by simply plowing the ground, as for corn; digging holes at the proper distances, and using no other manure, for the first few years, than the surface soil, or a little leaf-mould from the woods, applied at the time of planting. While others, still, vary the plain and easy system, by opening ditches or trenches (in well-plowed land) at the proper distances, and planting the roots or cuttings in these trenches, making holes below the bottom of the trench, when necessary to admit the roots. Such, in brief, are the systems of our friends, Dr. McDONALD and A. DE CARADEUC, Esq., of S. C., and we have heretofore often spoken of the success which has attended the efforts of these gentlemen, both in Grape Growing and the making of fine Wines.

Mr. CHARLES AXT, of Crawfordville, Ga., (well known as one of the most successful vintners of the South), now prepares his land almost entirely with heavy turning plows, followed by subsoil plows, and these again followed by turning and subsoil plows—*running four times in the same furrow*, and breaking and mixing the soil to the depth of fifteen or eighteen inches. Four separate pairs of mules, with two turning plows and two subsoil plows, are necessary to do this work expeditiously—though two teams may be made to do, by using a swivel or hill-side plow, with a shifting mould-board, which turns the furrows *all the same way*, and following this *twice in the same furrow*, with a good subsoil plow. When only two teams are used, of course they will have to go over the ground again, as before indicated—so as to run two turning furrows and two subsoil furrows *in the same place*, throwing out as deeply, and intermixing the earth as intimately as possible. With the proper plows, good teams and good plowmen, the ground can be prepared upon this plan at an expense of from \$10 to \$20 per acre. Other systems, and fuller details upon this important matter, will be given hereafter; and we respectfully and earnestly solicit the views and opinions of all our experienced readers.

**DISTANCE OF VINES, CUTTINGS, ROOTS, &c.**—We are fully convinced that all our *native* varieties have heretofore, as a general rule, been *planted too close* and *trimmed too close*; and that the teachings of nature have been overlooked or lost sight of. The vintners of Ohio are now satisfied that they have been misled by the German and French *vignerons*, who, coming from countries where land is very dear and the vine of much feebler growth, have not made sufficient allowance for the rampant habits of our vigorous native varieties. As one of the consequences of *close crowding*, and an unnatural effort to dwarf the vine by *close pruning*, the vineyards in the neighborhood of Cincinnati, and elsewhere in the West, present a very weak and languishing appearance, and are evidently hastening to decay. The very finest vineyard we saw at the North, was that of Mr. E. A. McKAY, of Ontario County, New York—the vines of which (all Isabella), were



planted exactly *one rod* (16 1-2 feet) *apart each way*. This vineyard has produced *twelve thousand pounds* of marketable grapes per acre, which are worth in any market, North or South, at least \$100 per 1000 lbs., or \$1200 per acre, and generally sell at 50 per cent. over this price. Mr. McKAY cultivates grapes for the table only, as the climate of the North does not produce grapes sweet enough to make a *keeping* wine. We will give this gentleman's system of culture, pruning, &c., hereafter; and while we do not wish to be understood, as advocating the *extreme* of distance in planting, we are not disposed to plant nearer than 8 by 8 feet, and for the strongest growing varieties, would rather prefer 10 by 10, or 12 by 12 feet, each way. For vineyards, on a large scale, we prefer *cuttings*, as being more economical and convenient; but for limited planting, garden arbors, &c., strongly *rooted vines*, properly transplanted, may be found most satisfactory.

VARIETIES OF THE GRAPE FOR THE SOUTH.—Many new varieties, that promise great excellence, have recently originated from seed both at the North and South; but these are yet too rare and dear for vineyard culture. The well-known and comparatively abundant kinds may be briefly characterized as follows: *Catawba*—a very hardy, vigorous grower and abundant bearer, generally free from rot or mildew; produces an excellent still wine like Hock, and a sparkling wine similar to Champagne. (*Vide* Longworth's *Catawba*) When fully ripe, is also much relished as a table grape, by most people. *Isabella*—a hardy, vigorous grower—earlier than *Catawba*—its berries do not ripen well together at all times; is a tolerable table grape, and makes a very good *Claret* Wine. *Black July* or *Lenoir*—earlier than either *Isabella* or *Catawba*—sweet, pleasant grape, moderate grower, and rather shy bearer—makes a really good Port Wine. *Warren*—a rampant grower and great bearer; liable to rot, but seldom fails of producing a moderate crop—superior table grape, and produces a wine similar to the best Maderia. *Pauline*—a strong grower and good bearer—as a table grape, the *best* on this list, and produces a fine wine, similar to Golden Sherry. *Scuppernon*—a wonderful grower and good bearer—adapted to lower, moister, and richer localities than any of the others—must be planted at least twenty or thirty feet apart, and will yield enormous crops when a few years old; fruit, musky, sweet, rich, but lacking in the elements necessary to produce a fine still wine. Will make a good sparkling wine or champagne, and when the juice is distilled, produces a very peculiar and excellent Brandy. D. R.

"*Vineland*," *Augusta, Ga.*, Nov. 1858.

## GRAPE CULTURE IN THE SOUTH—No. 2.

[Continued from December (1858) Number of *Southern Cultivator*.]

PREPARATION OF THE LAND, CONTINUED.—Since the publication of No. 1, the writer has received numerous letters on the subject of Grape Culture, from all parts of the Southern States; and as the inquiries of his correspondents seem to be mainly directed to the *cheapest and best method of preparing the soil* for a vineyard, he will give his own experience and practice, and go a little more into detail. In the first place, then, it is absolutely necessary to have *good tools* in order to do work properly and economically; and as *spade trenching* is too laborious and expensive, we are necessarily obliged to adopt the *plow*. For all heavy work heretofore, we have used the "Deep Sod Tiller" and "Rich's Iron Beam" or "Washington" plow, but these and all others are now cast aside and entirely superseded by Utley's Combined Subsoil and Turning Plow. With the assistance of one of our ingenious mechanics, (Mr. G. W. COOPER, of Decatur, Ga.) we have made such alterations and improvements in this Plow, as adapt it especially to the preparation of land for vineyards and orchards; and we can confidently recommend it (in its improved form) as the very best Plow we have ever seen for *deep tillage*. With our present "means and appliances" for the preparation of land, then, we can considerably lessen the estimate of cost given in our previous number; and, as *spade trenching* cannot be adopted by the mass of Grape culturists,

we give the following as the *latest, cheapest, and best* mode of inaugurating the culture of the Vine in the South:

Select a moderately sloping hill-side, with any exposure from east to southwest—an old field is preferable, because more easily brought into cultivation—burn off all grass, weeds, broomstraw, &c., and carefully grub out all briars, roots and stumps that might offer the least obstruction to the plow. With one of Utley's large plows, (properly set for subsoiling and turning) a pair of strong mules, and a good plowman between the handles, you are ready to commence. In the first place, plow your land *perpendicularly*, up and down the hill, taking a very narrow furrow slice (say 8 inches) and running as *deep* as possible. When you have plowed the land in this manner, *close and deep*, "turn your hand" and cross-plow the whole, *horizontally*, or *across* the hill, running again very narrow furrows, and as *deep* as possible. (Keep plenty of new plow points at hand, and change as often as the old ones become dull.) After you have thus plowed and cross-plowed, harrow carefully and closely, running around or across the hill. If the work has been properly performed, you will now find the whole of the land thoroughly stirred and broken to the depth of from 12 to 15 inches, and you may then proceed to lay off your rows. A Level, such as is used in hill-side ditching, will be of service to you in this matter, but is not necessary. We have always been guided by the eye alone. Begin at the top of the hill, and lay off row after row at the proper distances, curving in crescent shape around the hill, as in the following diagram:

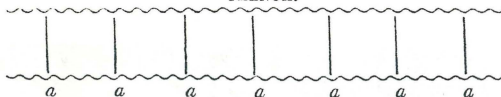
HILL SIDE.



These rows may be indicated by long stakes (which are more conspicuous if freshly peeled,) and can be *marked off* by a steady hand, with a single mule and a shovel or turning plow. After they are marked off plainly, take the Utley Plow, as before, and run deeply either twice or four times in every row, backwards and forwards, throwing out the earth both ways, and forming a trench 18 to 20 inches deep.

PLANTING.—Set short stakes or sticks along the edge of this trench, at the distances you intend planting, and let your hands pass along with their shovels, filling in a mound or dam of surface earth, a foot thick and level with the edges of the trench, at every stick. These mounds or banks of earth, that are formed in the trench, may be left moderately sloping in the direction of the trench, so that when the roots or cuttings are dropped in against them, they will lie at an angle of about 45 degrees. Let us endeavor to explain, by another diagram:

TRENCH.



The cross marks, *a, a*, &c., are intended to represent the little mounds of surface soil that are filled in across the trench for the roots or cuttings to rest against. When the trenches are prepared in this manner, one hand places the roots or cuttings, leaning against these little mounds, at the proper depth, and another follows and covers them with the shovel, using surface soil from the edges of the trench. In planting *cuttings*, leave the top bud or eye just even with the surface; or if it is slightly covered with light soil, it will break through, and perhaps be less liable to injury from late spring frosts. In planting *roots*, the strongest shoot of the previous year must be retained and cut back to 2 or 3 good eyes, the lowest of these



to be about one inch above the surface. When planting, it is not absolutely necessary to close or fill in the entire trench at once. Each root or cutting may be surrounded with a foot or two of earth, at first and the intermediate spaces, in the trench left open for a few days. If deemed advisable, a slight compost of leaf mould, ashes and broken bones may be scattered in these spaces between the plants for the future nourishment of the root, and the trench afterwards closed by the shovel or the turning-plow.

In order to secure a good stand, it has been our custom to plant twice as many cuttings as we intend to leave. For instance, if we intend our vines ultimately to stand 10 feet apart in the row, we plant cuttings every 5 feet in the row, and if all grow, take up every second one at the end of the first season, leaving the others at the proper distance. This is better than planting two or three cuttings in a hole together and removing all but one; as, by our method, there is no danger of injuring the vine left behind.

**AFTER CULTURE.**—During the first summer, the entire ground must be kept clean, open and mellow, by the constant passage of light cultivators or horse-hoes between the rows, and if the soil is very clayey or retentive, it may be well to make a wide open furrow mid-way between each row, to hold surplus water, and keep it from settling around the grape roots. This will rarely be necessary, however, if the ground has been plowed and pulverized as we have directed; for, such a large body of loose and porous soil possesses immense capacities for the absorption and proper distribution of moisture. If your hill side is steep and inclined to "wash" or "gully," it may be well to bed up two or three furrows of earth on the *lower side* of each grape row, thus forming a sort of shelf or terrace for each, which, with the centre furrow before described, will enable every row to hold whatever water falls upon it, and prevent that "washing" and "gulying" which is the consequence of a rush of accumulated water.

**MULCHING, &c.**—After the first spring working of the Vineyard with the horse-hoe or cultivator, it will be found an excellent practice to *mulch* or cover the ground along the grape rows, two feet in width and four or five inches deep, with partially decomposed leaves, chopped pine straw, or some similar material, sprinkling a little earth over it to keep it in place. This mulching will prevent the growth of weeds, restrain too rapid evaporation, &c., and, by its gradual decay, yield considerable sustenance to the vine. It will, also, we think, have a tendency to prevent the sometimes blighting effects of the refraction of the sun's rays from a hard and baked surface; and if the canes are trained low and horizontally, will be useful in keeping the clusters of fruit clean and unsullied.

We deem it scarcely necessary to offer any further remarks on pruning, making of wine, &c., at present; as the able and practical treatise of Mr. DE CARADEUC is very full and explicit upon all these points, and may be safely followed. As new facts and experiments, connected with Grape Culture in the South, are developed, we shall take great pleasure in giving them to the public; and being desirous, in our humble way, of doing all in our power to further the progress of this great enterprise, we shall be greatly obliged for information from practical men everywhere.

In the preceding remarks, we have indicated our own preference for locality, implements, &c., but do not wish it to be understood that level land may not answer the purpose well, or that the work may not be performed with different plows from those which we use. We deem it advisable to point out the easiest and most practicable system, in order that land owners may be induced to give the Grape a fair trial; feeling confident that the success which will follow this simple and inexpensive plan of planting the Vine, will justify and induce a more thorough and elaborate preparation of other Vineyards hereafter. We, of the South, are in this, as in many other things, singularly oblivious of the great advantages of soil and climate which we possess; but we trust that the new spirit which is beginning to prevail, and the many well-directed experiments now in progress, will remove all doubt, and fully demonstrate the unrivalled capacities of our favored section.

D. R.

"Vineland," Augusta, Ga., Jan., 1859.